

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
10 June 2004 (10.06.2004)

PCT

(10) International Publication Number
WO 2004/047570 A2

- (51) International Patent Classification⁷: **A24C 5/00**
- (21) International Application Number: **PCT/GB2003/005153**
- (22) International Filing Date: **26 November 2003 (26.11.2003)**
- (25) Filing Language: **English**
- (26) Publication Language: **English**
- (30) Priority Data: **0227715.0 28 November 2002 (28.11.2002) GB**
- (71) Applicant (*for all designated States except US*): **BRITISH AMERICAN TOBACCO (INVESTMENTS) LIMITED [GB/GB]**; Globe House, 1 Water Street, London WC2R 3LA (GB).
- (72) Inventor; and
- (75) Inventor/Applicant (*for US only*): **FROST, Barrie, Edward [GB/GB]**; 6 Kingfishers, Basildon, Essex SS16 5JB (GB).
- (74) Agent: **DRAKEFORD, Robert, William**; British American Tobacco R & D Centre, Patents Department, Regents Park Road, Southampton SO15 8TL (GB).

(81) Designated States (*national*): AB, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

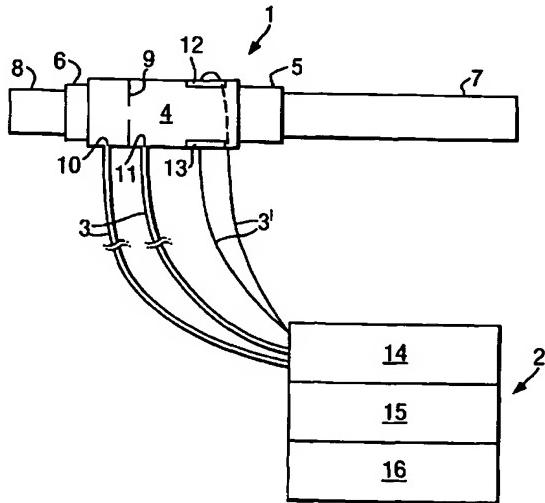
(84) Designated States (*regional*): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **SMOKING BEHAVIOUR ANALYSER**



WO 2004/047570 A2

(57) Abstract: The invention relates to smoking behaviour analyser that allows a puff by puff real time analysis of a person's smoking behaviour whilst smoking. The device comprises smoking article mounting means for holding a smoking article in fluid-flow communication with fluid flow pressure drop detection means and smoke density detection means for detecting the optical density of the smoke; signal conversion means to convert signals obtained from the fluid flow pressure drop detection means and smoke density detection means into data; and data processing means operable to process data and provide a calculation of a delivery value of particulate phase smoke components from a smoking article. The data is displayed in graphical and/or numerical form.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
10 June 2004 (10.06.2004)

PCT

(10) International Publication Number
WO 2004/047570 A3

(51) International Patent Classification⁷: **A24C 5/34**

(21) International Application Number:
PCT/GB2003/005153

(22) International Filing Date:
26 November 2003 (26.11.2003)

(25) Filing Language: **English**

(26) Publication Language: **English**

(30) Priority Data:
0227715.0 28 November 2002 (28.11.2002) **GB**

(71) Applicant (for all designated States except US): **BRITISH AMERICAN TOBACCO (INVESTMENTS) LIMITED [GB/GB]**; Globe House, 1 Water Street, London WC2R 3LA (GB).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **FROST, Barrie, Edward [GB/GB]**; 6 Kingfishers, Basildon, Essex SS16 5JB (GB).

(74) Agent: **DRAKEFORD, Robert, William; British American Tobacco R & D Centre, Patents Department, Regents Park Road, Southampton SO15 8TL (GB).**

(81) Designated States (national): **AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.**

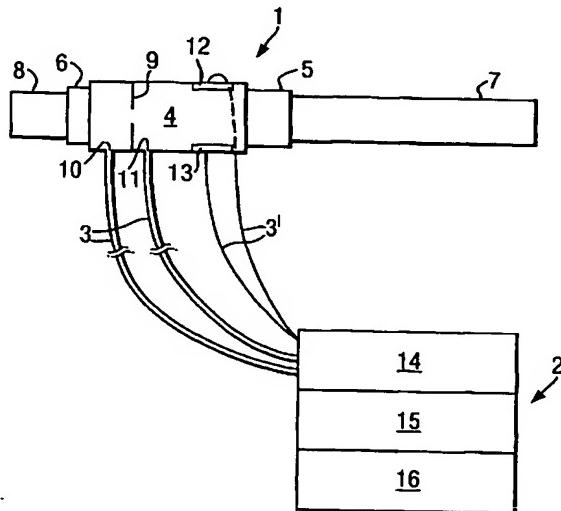
(84) Designated States (regional): **ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).**

Published:

— with international search report

[Continued on next page]

(54) Title: **SMOKING BEHAVIOUR ANALYSER**



WO 2004/047570 A3

(57) Abstract: The invention relates to smoking behaviour analyser that allows a puff by puff real time analysis of a person's smoking behaviour whilst smoking. The device comprises smoking article mounting means for holding a smoking article in fluid-flow communication with fluid flow pressure drop detection means and smoke density detection means for detecting the optical density of the smoke; signal conversion means to convert signals obtained from the fluid flow pressure drop detection means and smoke density detection means into data; and data processing means operable to process data and provide a calculation of a delivery value of particulate phase smoke components from a smoking article. The data is displayed in graphical and/or numerical form.



- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

- (88) Date of publication of the international search report:
26 August 2004

INTERNATIONAL SEARCH REPORT

Int. Application No
PCT/GB 03/05153

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A24C5/34

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 A24C G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, COMPENDEX, FSTA

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	WO 02/098245 A (BRITISH AMERICAN TOBACCO CO ;READ GRAHAM ALBERT (GB); WARREN NIGEL) 12 December 2002 (2002-12-12) cited in the application abstract; figure 1 ---	1-38
A	CH 503 986 A (GALLAHER LTD) 28 February 1971 (1971-02-28) column 10, line 53 – line 67; figure 1 ---	1
A	US 5 377 697 A (DEUTSCH LANCE J ET AL) 3 January 1995 (1995-01-03) abstract; figure 1 ---	1
A	US 5 044 380 A (CROOKS EVON L ET AL) 3 September 1991 (1991-09-03) column 4, paragraph 2 – paragraph 3 ---	1
	-/-	

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the International search

7 July 2004

Date of mailing of the International search report

14/07/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Pille, S

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 03/05153

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 858 628 A (NORMAN ALAN B ET AL) 22 August 1989 (1989-08-22) abstract -----	1
A	US 4 771 381 A (PERFETTI THOMAS A ET AL) 13 September 1988 (1988-09-13) the whole document -----	1

INTERNATIONAL SEARCH REPORT

Dental Application No

PCT/GB 03/05153

Patent document cited in search report	Publication date		Patent family member(s)		Publication date
WO 02098245	A 12-12-2002		CA 2446710 A1 EP 1401298 A1 WO 02098245 A1		12-12-2002 31-03-2004 12-12-2002
CH 503986	A 28-02-1971		BE 706101 A DE 1632191 A1 FR 1545973 A GB 1190926 A NL 6715268 A NL 7903347 A		06-05-1968 12-11-1970 15-11-1968 06-05-1970 13-05-1968 31-08-1979
US 5377697	A 03-01-1995		EP 0643925 A1		22-03-1995
US 5044380	A 03-09-1991		NONE		
US 4858628	A 22-08-1989		NONE		
US 4771381	A 13-09-1988		NONE		